

# PMX-Wall-LA Particle Sensor



by FjellCom 

## Description

The particle sensors are specifically designed to monitor and air pollution in offices and other indoor spaces. The sensors complement applications for a healthy indoor climate. ModBus RTU&TCP/IP, BACnet MSTP&IP for direct digital reading on all models.



## Highlights

- Accurate : Laser scatter method, particles are sized with a resolution of 0.3  $\mu\text{m}$ .
- User defined sampling period prolongs sensor life.
- Fast Response : response time less than 10 seconds.
- Real-time display monitoring data on LCD .
- Supports ModBus TCP/IP & BACnet IP protocol over WIFI.
- Supports ModBus RTU & BACnet MSTP protocol over RS485.
- TVOC sensor can detect Glycerin (Vaping smoke).

## Specifications

General			
<b>Power</b>	15-24V +/- 10%, AC or DC,3VA@24VAC		
<b>Display Resolution</b>	130x80 dot matrix, backlit		
<b>Temperature Limit</b>	-20~+50°C, 0~95% RH(Non condensing)		
<b>Plastic Housing</b>	Flammability rating UL 94 file E56070		
<b>Particulate Matter Sensor Life time</b>	8 years continuous, adjustable to decades intermittent		
<b>Communications</b>	ModBus TCP/IP & BACnet IP protocol over WIFI ModBus RTU & BACnet MSTP protocol over RS485		
<b>Range</b>	Mass concentration range	0 to 100 $\mu\text{g}/\text{m}^3$	
	Mass concentration size range	PM1.0	0.3 to 1.0 $\mu\text{m}$
		PM2.5	0.3 to 2.5 $\mu\text{m}$
		PM4	0.3 to 4.0 $\mu\text{m}$
		PM10	0.3 to 10.0 $\mu\text{m}$
	Number concentration size range	PM0.5	0.3 to 0.5 $\mu\text{m}$
		PM1.0	0.3 to 1.0 $\mu\text{m}$
		PM2.5	0.3 to 2.5 $\mu\text{m}$
		PM4	0.3 to 4.0 $\mu\text{m}$
		PM10	0.3 to 10.0 $\mu\text{m}$
	Number concentration range	0 to 3000 $1/\text{cm}^3$	
	Relative Humidity	0~100% non condensing	
Temperature	-30~70°C (-22~158 ° F)		
CO2	3000PPM		
<b>Accuracy</b>	PM0.5 PM1 PM2.5 PM4 PM10	0 to 100 $\mu\text{g}/\text{m}^3$ 100 to 1000 $\mu\text{g}/\text{m}^3$	
	Relative Humidity	5%RH (25°C,20-80%,RH)	

<b>Accuracy</b>	Temperature	<±0.5°C@25°C
	CO2	±70PPM OR ±5% of reading
<b>Response-Time</b>	Relative Humidity	<10s(25°C,in slow air)
	Temperature	<10s
	CO2	20s
	PM0.5 PM1 PM2.5 PM4 PM10	<8s

### AQI levels as defined by the China Ministry of Environmental Protection

Air Quality Index	Air Pollution Level	PM2.5 24hr avg(ug/m <sup>3</sup> )	PM10 24hr avg(ug/m <sup>3</sup> )
0~50	Good	0~35	0~50
50~100	Moderate	35~75	50~150
100~150	Unhealthy for Sensitive Groups	75~115	150~250
150~200	Unhealthy	115~150	250~350
200~300	Very Unhealthy	150~250	350~420
>300	Hazardous	>250	>420

### AQI levels as defined by the US Environmental Protection Agency

Air Quality Index	Air Pollution Level	PM2.5 24hr avg(ug/m <sup>3</sup> )	PM10 24hr avg(ug/m <sup>3</sup> )
0~50	Good	0~12	0~54
51~100	Moderate	12.1~35.4	55~154
101~150	Unhealthy for Sensitive Groups	35.5~55.4	155~254
151~200	Unhealthy	65.5~150.4	255~354
201~300	Very Unhealthy	150.5~250.4	355~424
301~500	Hazardous	250.5~500.4	425~604

Total volatile organic compounds (TVOC) and why this quantity is related to indoor air quality (IAQ) and the so called IAQ levels. Since Sensirion’s SGP gas sensor is responsive to a broad range of volatile organic compounds (VOC) and other gases relevant for indoor air quality, the present gas sensing technology is well suited for monitoring TVOC concentrations and for translating those into IAQ levels. In order to meet Sensirion’s high quality standards, each SGP sensor is production calibrated.

TVOC (= Total Volatile Organic Compounds) corresponds to the sum of volatile organic compounds (VOC1). The sum of VOC concentrations, or simply TVOC2, is used as an indication for VOC contamination. VOC contamination is an established concept in regulatory and scientific literature. Note that the specific TVOC composition varies between different ambient indoor environments and indoor air is always composed of different volatile organic substances<sup>3</sup>. Therefore, it is helpful to consider TVOC concentrations as statistical reference values which help to indicate indoor air quality

## Indoor air quality(IAQ)Levels and how they are related to Tvoc Concentration

Level	Hygienic Rating	Recommendation	TVOC (mg/m <sup>3</sup> )	TVOC (ppb ) <sup>8</sup>
5 Unhealthy	Situation not acceptable	Intense Ventilation necessary	10-25	2200-5500
4 Poor	Major objections	Intensified Ventilation/ airing necessary	3-10	660-5500
3 Moderate	Some objections	Intensified Ventilation recommended	1-3	220-660
2 Good	No relevant objections	Ventilation/airing recommended	>0.3-1	65-220
1 Excellent	No objections	Target Value	<0.3	0-65

## Indoor air quality Levels for Europe according to WHO

Level	Recommendation	TVOC (mg/m <sup>3</sup> )	TVOC (ppb ) <sup>8</sup>
Outside quality classes	Greatly increased (not acceptable)	>3.0	>610
4	Significantly increased Only temporary exposure	1.0-3.0	200-610
3	Slightly increased (harmless)	0.5-1.0	100-200
2	Average(harmless)	0.25-0.5	50-100
1	Target value	>0.25	0-50

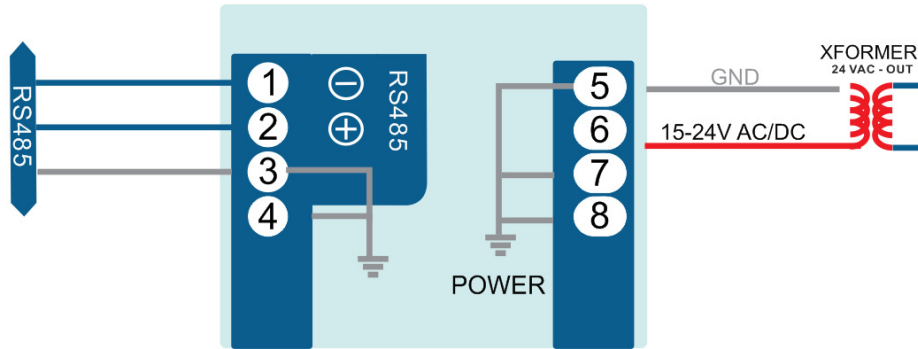
**IAQ Performance Targets for ambient Tvoc Conertration Expressed in mass concentration (ug/m<sup>3</sup>)**

TVOC concentration regarding RESET target	(ug/m <sup>3</sup> )	(ppb) <sup>8</sup>
Acceptable	<500	<250
High Performance	<400	<200

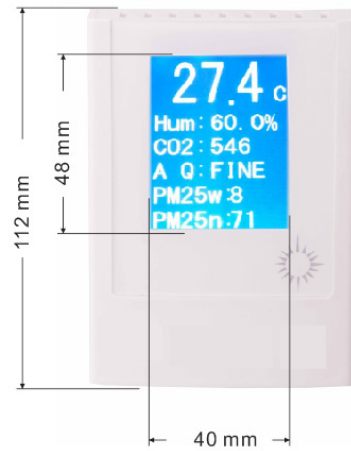
**Maximum Average TVOC Concentration according to LEED Standard for Green Buildings**

Green building standard LEED	(ug/m <sup>3</sup> )	(ppb) <sup>8</sup>
TVOC limit	<500	<250

## Wiring Diagram



## Dimensions



## Mounting Installation

1. Slotted Screwdriver

2. Unfasten screw at cover

3. Install screws as shown

4. Installing the rear panel

